

692.6

Sanitary
House-Inspection

S. P. LEVITCH,
51 JOHN STREET, NEW YORK.

With the compliments of
the author.

22 S '93

Sanitary House-Inspection

WM. PAUL GERHARD, C. E.,

CONSULTING ENGINEER FOR SANITARY WORKS,

Makes SANITARY INSPECTIONS of City
and Country Houses for sale and to
rent.

Prepares EXPERT REPORTS, pertaining
to Water Supply, Ventilation, Heat-
ing, Sewerage and Plumbing.

Superintends ALTERATIONS and NEW
WORK in all classes of Buildings and
Institutions.

OFFICE: 39 UNION SQUARE, WEST,
NEW YORK CITY.

EXTRACTS FROM
A GUIDE TO
SANITARY HOUSE-INSPECTION;

OR,

HINTS AND HELPS REGARDING THE CHOICE OF A
HEALTHFUL HOME IN CITY OR COUNTRY.

"How can a house be a safe haven, if in winter the winds pierce it, if in summer the sun scorch it, if dampness rises in its walls, if foul air penetrates its chambers, if by neglect or ignorance the demons of fever enter and lurk therein?"

OLIVER B. BUNCE: *My House, an Ideal.*

THE statement has recently been made, that, "of all the houses put up in the United States, not one in a hundred is made to submit to any official regulation. The local government know nothing of the plans of the builders or architects: there are no sanitary regulations, or attempts to insure protection against fire. No wonder that

FDY 89-136807 TCF

whole cities are destroyed by conflagration, and that malaria and disease are common throughout the country ! There is no provision by law securing proper drainage, sewerage, or safe construction in ninety-nine out of every hundred houses erected in the United States."

While this may not strictly apply to our largest cities, in which building-laws and sanitary regulations are now in force, yet there cannot be much doubt, that, even in these, there is room for much improvement. That the statements quoted are true of the majority of buildings in small cities and towns, and of many of the country and suburban houses annually erected, nobody will deny.

NECESSITY OF SANITARY HOUSE-INSPECTION.

Taken as a whole, the warning given ought to serve a useful purpose in calling attention to the serious risks incurred by people in occupying a dwelling without first having made a thorough inspection of the premises. Even if a temporary residence only is contemplated, it would not

appear prudent to neglect such an investigation and inquiry. Health being the supreme consideration, the greatest stress should always be laid upon a detailed examination of the sanitary condition of the home. Nevertheless, in by far the majority of instances, the public exhibits an utter indifference and carelessness with regard to this important matter. In choosing a home, the importance of a wholesome soil, of sound building materials, and of honest workmanship, is apt to be set aside by questions of convenience and fashion, and a number of other considerations of less value. What is the prevalent custom with even well-educated people in choosing a dwelling? Disregarding the question of a salubrious site and of a sanitary construction, they are satisfied if the house stands in a nice street and a fashionable locality, and presents an attractive exterior. On entering such a house, the usual points inquired into are the sizes of the principal rooms, but particularly of the parlor, dining-room, and reception-room; the character of the hardwood trimmings, of plate-glass mirrors, the elab-

orate decoration of mantle-pieces ; the provision made for look-outs, bay-windows, and plenty of closet space ; the convenience of fittings, such as electric bells, speaking tubes, dumb-waiters ; the elegance of the plumbing fixtures so far as they appear visible, in particular of showy marble tops of basins, of silver-plated faucets, costly decorated bowls, and hardwood cabinet-work incasing the plumbing. Briefly, it is the superficial appearance of all *visible* finish which exercises more influence upon intending buyers than the more serious considerations of stability, healthfulness, and safety. Only occasionally does it happen that an inquiry is made into the stability and general character of the structure.

No prudent man would think of buying a house without carefully examining the title of the property ; and it is now regarded, in real-estate transactions, as a necessary expenditure to pay competent lawyers for services rendered in securing evidence as to the correctness of the title of a property before concluding any bargain. But not one out of a hundred or more purchasers

would deem it of sufficient importance to secure a certificate from an expert that the house is built in accordance with sanitary rules and regulations. And yet, if the buyer intends to make the house his future residence, his own health, and that of his family and household, will depend upon its cleanliness and salubriousness. The same remarks apply, with equal force, to houses for rent, located in the city, in the suburbs, or in the country.

* * * * *

It may not seem out of place to utter a word of caution to intending buyers or lessees of houses, old or new, as to the acceptance of general and indefinite statements made to them by real-estate agents. Let it be understood, that it is not, at the present time, a part of the business of an agent to demonstrate the healthful condition of a property. He is simply acting in the interest of the owner or landlord who commissioned him to sell or to rent, as the case may be, a house, at as high a price, and under as favorable terms, as he may be able to secure. Undoubtedly, the time is near at hand

when it will be considered indispensable for agents and owners to produce a certificate of the healthfulness and sound construction of a house; and the natural consequence must be that houses having such proper sanitary certificate will command a much better price, and find a more ready sale. At present, however, the duty devolves upon the intending purchaser or lessee to secure expert evidence that a house is properly arranged and built as regards its situation and subsoil, its construction, its ventilation, warming, lighting, and protection against fire, and its system of water-supply and sewerage.

* * * * *

The conclusions at which we must arrive, from an earnest and thoughtful consideration of the facts stated, are, that before choosing for occupancy a home, in city or country, a householder should take the precaution to inquire carefully into its healthfulness and the character of its surroundings. A little time devoted to such a preliminary investigation, and a consideration of the facts elicited, are

always well worth the trouble, and may save much subsequent illness, especially of those members of the family who are obliged to spend the greater part of each day at home. Those who can ill afford the time required for an investigation, or do not feel themselves competent to pass judgment, should not hesitate to ask expert advice in a matter which may hereafter affect the well-being of those whom they love most. It is particularly true of dwelling-house sanitation, that "an ounce of prevention is better than a pound of cure."

"SKIN" BUILDINGS.

In cities and in rapidly growing suburbs it will be advisable to avoid, by all means, the cheap houses of the speculative or "jerry" builder, which are run up by the hundreds in an incredibly short time, without any considerations whatever of rules governing healthful house-construction; and if they bear a displayed advertisement of having been built "by day's work," and of being provided with perfect "*sanitary* plumbing and *sanitary* heating," we will not, generally, be

far from right if we look upon them with all the more suspicion. Such "skin" houses may easily be recognized, however attractive they may be in outside appearance, by an inferior workmanship of details of construction other than those relating to sanitary arrangements. Health, comfort, convenience, and sound construction are, with them, too often sacrificed to mere outward elegance and fashion. Wherever we find that a house has settled considerably, owing to poor foundations, and exhibits walls full of cracks; wherever the brick-work is laid with the poorest kind of mortar; wherever the outer walls appear wet or splashed, owing to window-sills that do not project beyond the walls, and are not grooved on the under side so as to throw the water clear of the walls; wherever the plastering is unsatisfactorily done, and does not show well-planed and true surfaces; wherever floor-boards are loose, or show wide cracks favoring the accumulation of dirt and dust, and forming harboring-places for vermin; wherever door-frames are out of plumb, and doors, windows, and shutters constructed of un-

seasoned wood, with panels full of cracks; wherever gas fixtures hang out of plumb, or rattle with every footstep, owing to insufficient strength of the joists; wherever locks refuse to work, window-sashes stick, and sash-ropes are torn; wherever the paint soon scales or wears off; wherever the cold-air box is constructed of a poor material, with a multitude of cracks and crevices; wherever hot-air flues are insufficient in size, and carried close to unprotected wood-work; wherever, finally, the whole plumbing-job appears to be "scamped,"—there we may, with a tolerable degree of certainty, assume that sanitary considerations have been neglected, and sanitary work but imperfectly done, even if the building and health regulations have, to all superficial appearance, been complied with. For it must be remembered, that, even in those cities where building and sanitary regulations are in force, and a large corps of efficient building and sanitary inspectors exercise a supervision of work in new buildings, it is very difficult to prevent intentional frauds on the part of unscrupulous builders. As regards drainage and plumbing

of buildings, in particular, there always remains a chance for doing defective work, or using improper or poor materials, without necessarily violating any of the official regulations.

One cannot live in a house of this kind, even if only completed just before occupation, without having before long serious defects appear, necessitating frequent and expensive repairs. Flues will not draw, being roughly and improperly constructed without smooth lining, and made insufficient in size; fire-places will smoke; the furnace will not heat a house, although a brisk fire turns the iron red-hot; water-pipes and traps will constantly freeze and burst in mid-winter, owing to carelessness of arrangement and to the light weight of lead used; faucets soon wear out, and drip; gas-flames burn with an unsteady, dim light, owing to the insufficient size of the gas-service pipes; roofs will leak; dampness and mould will appear in the cellar; and sewer air from abominable pan-closets and dried-up cellar traps will soon fill the house. Living in such a house means having not only the constant annoyance of mechanics

trying to repair an originally bad job, but—and this is infinitely more serious—it means frequent calls for the family physician, or continued low state of health of your wife and children. Avoid such houses, by all means.

But, even where outward indications do not warrant the conclusion that a house is unsafe to live in, it is well to examine the building thoroughly, from cellar to garret; or to get an expert to make a report upon its condition. The investigations of the last twenty-five years, in preventive medicine, have advanced the knowledge of the laws of hygiene, and of the conditions favorable to health, to such an extent, that it is feasible to establish fundamental rules with regard to healthful house-construction. This is as far as the duty of medical men should extend. It devolves upon architects and engineers to apply their practical knowledge in carrying out such arrangements and details of construction as are best adapted to secure healthful conditions. In sanitary house-inspections, the principal aim is to inquire if such rules have been followed; and, if

not, wherein and how far they have been
violated. * * * * *

* * * * *

NECESSITY OF PERIODICAL INSPECTION.

In conclusion, I desire to emphasize the necessity of a *periodical* inspection of the sanitary condition of all kinds of buildings. It is not sufficient to spend once a large amount of money to put the sanitary arrangements in a good condition. Constant supervision and thought are required to keep every thing in good order.

* * * * *

It is, however, by no means always required that an expert should be called in at each time, to make the inspection; for if a householder or the mistress of a house would take pains to keep themselves well informed about sanitary matters, and to understand the chief points to be inquired into, they would be able to perform the inspection themselves, after a house has been once properly arranged and built: and it might even be advan-

tageous to combine such an inspection with the annually recurring house-cleaning, and not to wait until some noxious smells indicate that the plumbing has become defective, or that other serious defects exist.

* * * * *

Most people are only too apt to postpone the inspection until much too late, when a severe case of illness in the family, or a death from one of the preventable diseases, opens their eyes to the dangers by which they are surrounded. To send for an expert after a fatal case of illness, might well be compared with the calling-in of an inspecting engineer after a steam-boiler explosion has occurred. If, in making a sanitary house-inspection, it is considered impracticable to remove tight woodwork, rip up floors, cut up walls, dig holes, so as to clearly expose every fixture, trap, and every foot of waste or vent-pipe, and to gain access to the interior of drains, or to make sure that no old cesspools exist under a house, the results of the examination will enable the inspect-

or to make a general or preliminary report only. It is, however, always better to make a thorough examination; and in that case a complete report of the sanitary inspection of a dwelling should contain: (1) a general statement describing the sanitary condition of a building at the time of the inspection; (2) a detailed statement of the sanitary defects discovered, with reasons why the arrangements are faulty; (3) a detailed recommendation of improvements to be made to put a house in a proper and healthful condition.

To sum up, no house should be purchased or leased, in the city or in the country, the sanitary condition of which has not been carefully examined into, and its fitness for occupancy certified, by some well-educated, disinterested professional man.

There is not the slightest doubt, that, if the public will thus insist upon healthful surroundings and salubrious buildings, a greater attention will soon be paid by landlords and builders to the important questions of drainage and plumbing, heating and ventilation, lighting and safety from fire, water-

supply and disposal of sewage. A healthful home having been once secured, it becomes the sacred duty of the householder to inquire at frequent intervals into its continued good sanitary condition. To aid the householder in the search for such structural defects as may endanger the health of his household, is the object of this—
Guide to Sanitary House-Inspection.

A GUIDE TO SANITARY HOUSE-INSPECTION;

OR,

HINTS AND HELPS REGARDING THE CHOICE OF A HEALTHFUL
HOME IN CITY OR COUNTRY.

BY

WILLIAM PAUL GERHARD, C. E.,

*Consulting Sanitary Engineer; Member St. Louis Engineers' Club, New England
Water-Works Association, American Public Health Association,
German Technical Society of New York, etc.*

AUTHOR OF "HOUSE DRAINAGE AND SANITARY PLUMBING;" "HINTS ON THE DRAINAGE
AND SEWERAGE OF DWELLINGS;" "DIAGRAM FOR SEWER CALCULATIONS;" "THE
DISPOSAL OF HOUSEHOLD WASTES;" "SANITARY QUESTIONS;" "THE
PREVENTION OF FIRE;" "SANITARY DRAINAGE OF BUILD-
INGS;" "THE DRAINAGE OF A HOUSE;" "DOMESTIC
SANITARY APPLIANCES," ETC., ETC.

Second Edition, cloth bound.

Price, postpaid, 75 cents.

NEW YORK: JOHN WILEY & SONS, 15 ASTOR PLACE.

1889.

CONTENTS.

NECESSITY OF SANITARY HOUSE INSPECTION.

"SKIN" BUILDINGS.

ESSENTIALS OF A HEALTHFUL HOME.

INSPECTION OF CITY HOUSES:

Surroundings and Soil, Cellar, Yard, Structural Details, Sewerage, Plumbing, Water Supply, Garbage Disposal, Warming, Gas-Lighting, Ventilation, Bad Odors, Prevention of Dust, Safety against Fire.

APARTMENT HOUSES.

INSPECTION OF TENEMENT HOUSES.

INSPECTION OF COUNTRY HOUSES.

Choice of Site, Foundations, Cellar, Walls, Roofs, Rooms, Heating Apparatus, Plumbing Work, Water Supply, Disposal of Wastes, House Surroundings, Removal of Storm Water.

SUMMER BOARDING HOUSES AND SUMMER RESORTS.

NECESSITY OF PERIODICAL INSPECTION.

NOTICES OF THE PRESS.

"The special points insisted upon are calculated to give us healthier homes."—*Scientific American*.

"Armed with this manual the searcher for a fit dwelling-place ought not to go far wrong."—*Literary World*.

"It is one of those little volumes which are full of sensible advice which everybody should follow."—*Congregationalist*.

"Like all Mr. Gerhard's books on sanitary subjects, this one can be highly commended."—*Manufacturer and Builder*.

"The text is clear, concise and sufficiently brief to be read through at a single sitting. We hail with pleasure books of its class."—*N. Y. Medical Times*.

"The book is admirably written, the style being simple and clear, and the subject being presented in an interesting manner throughout."—*Inland Architect*.

"The volume instructs the householder in the essentials of a healthful house. It also offers many good suggestions about the building and care of tenement and apartment houses. We can cordially recommend it."—*Christian Union*.

"Mr. Gerhard's hand-book is a timely production."

—*Engineering News.*

"Mr. Gerhard is an authority on sanitary matters."

—*American Artisan.*

"We can cordially recommend Mr. Gerhard's little book, not only to tenants but to owners of houses as well."—*The Critic.*

"As a guide to architects, sanitary inspectors and householders, the author's little summary will be found of much service."

—*London Building News.*

"It is a small volume that gives in clear and concise language the main features of an important subject."

—*Northwestern Architect and Improvement Record.*

"This work is a laudable endeavor to teach the ignorant civilized man how to enter upon the knowledge and enjoyment of sanitation."

—*Philadelphia American.*

"The work is printed in large type and is well adapted to fulfil its mission; being a creditable addition to this class of literature."

—*Journal of the Franklin Institute.*

"We are glad to see books of this kind multiplied. The book is a neat one, printed in large type and plainly worded. We commend it heartily."—*Herald of Health.*

"It is a comprehensive *vademecum* for the householder and househunter, and contains succinct and complete instructions for the sanitary inspection of dwellings.—*Science.*

"The eminent character of the author for thoroughness and intelligence in the treatment of this subject guarantees an excellent work, as, indeed, it is."—*Good Housekeeping*.

"Anything written by William Paul Gerhard, the New York civil engineer and expert, on the sanitary arrangement of dwellings and buildings in general, is worth consideration."

—*The Home Maker*.

"What we like about Mr. Gerhard's book is its simplicity, clearness, terseness and practical character. The keen observation and thorough training of the author are shown on nearly every page."

—*Mechanics*.

"The first and most important point to be considered, in building or renting a house, is its sanitary condition. Formerly little attention was paid to this matter, but now Sanitary Engineering has become a regular profession. None hold a higher rank in this calling than Mr. Gerhard."—*Boston Popular Science News*.

"A small but very valuable collection of hints. . . . The author has furnished in this little manual precise, simple and thoroughly intelligible rules, by which people in search of a house may make a good selection. All intending to buy, lease or rent a house, or part of a house, in city or country, would do well to consult it."—*N. Y. Herald*.

"This valuable little book contains hints and helps regarding the choice of a healthful home in city or country. The author is a well-known authority on matters pertaining to Sanitary Engineering, having written a number of kindred works. The present volume will be found full of clear and practical instruction and suggestions."—*Boston Journal of Commerce*.

"It is a sanitary tract for the householder and sanitary inspector. The work is clearly written and contains advice which, if intelligently followed, will be worth many times its cost."

—*Phila. Medical Times.*

"Among architects and professional men, Mr. Gerhard is well known as a writer and authority on sanitary subjects. His work will be found both interesting and valuable, and ought to do much towards securing more healthful habitations."—*Building.*

"Mr. Gerhard is one of the best known of American writers on sanitary subjects, and a sanitary engineer of very wide experience. This book contains an unusual amount of information for its size, and ought to prove a valuable hand-book."

—*London Sanitary Record.*

"Mr. William Paul Gerhard's reputation as a civil engineer, no less than as the author of sanitary books and as a contributor to the journals of the country on sanitary subjects, is well known. His very convenient little hand-book is certainly worthy of commendation."—*Sanitary News.*

"Mr. Gerhard's contributions to sanitary science have been of a character so practical and so well fitted to promote the health of every community, that any further production of his ought to meet with an encouraging welcome. His latest book "A Guide to Sanitary House Inspection," is full of useful suggestions."

—*Boston Advertiser.*

"Not only does nearly every page teem with information in which the average head of a house is usually so sadly deficient, but throughout the work are to be found hints that may be of service to many. We would recommend our readers to peruse the book for themselves if they would appreciate its utility as a handy volume of reference."—*Building and Engineering Times.*

"Mr. Gerhard is to be congratulated on the production of an excellent little volume of well-put advice and valuable information. Mr. Gerhard has left his little volume to stand on its own qualities, unsupported by the adventitious aid of self-aggrandizement, and we heartily wish him the success his modesty and capability have merited."—*Building Budget*.

"It is a matter of very serious importance to any one intending to occupy a dwelling to insist upon a thorough sanitary inspection of his new home. Mr. Gerhard has furnished us with an invaluable guide for this work. His work is simple in style and systematic in arrangement and shows not only a thorough knowledge of the subject treated but a familiarity with the most advanced requirements in sanitary science."—*American Architect*.

"Mr. Gerhard, who is one of our leading sanitary engineers, has in this little volume outlined the main features of a sanitary house inspection, and has treated the subject in so plain, common sense and readily comprehensible a manner, that the book will be welcomed not only by architects, engineers, builders, health officers, sanitary inspectors and family physicians, but also and especially by householders, for whose instruction it is indeed invaluable.

"The special merit of Mr. Gerhard's latest work lies in the simplicity of the treatment and the directness of the intelligible instructions conveyed. This work comes in as a true missionary, and is deserving of a wide appreciation and sale."

—*American Engineer*.

